



Fundamentals of Standards and Conformity Assessment for Government Agencies

June 23, 2016

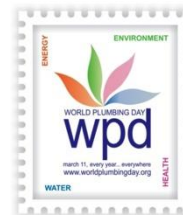
WWW.IAPMO.ORG 4755

The IAPMO Group

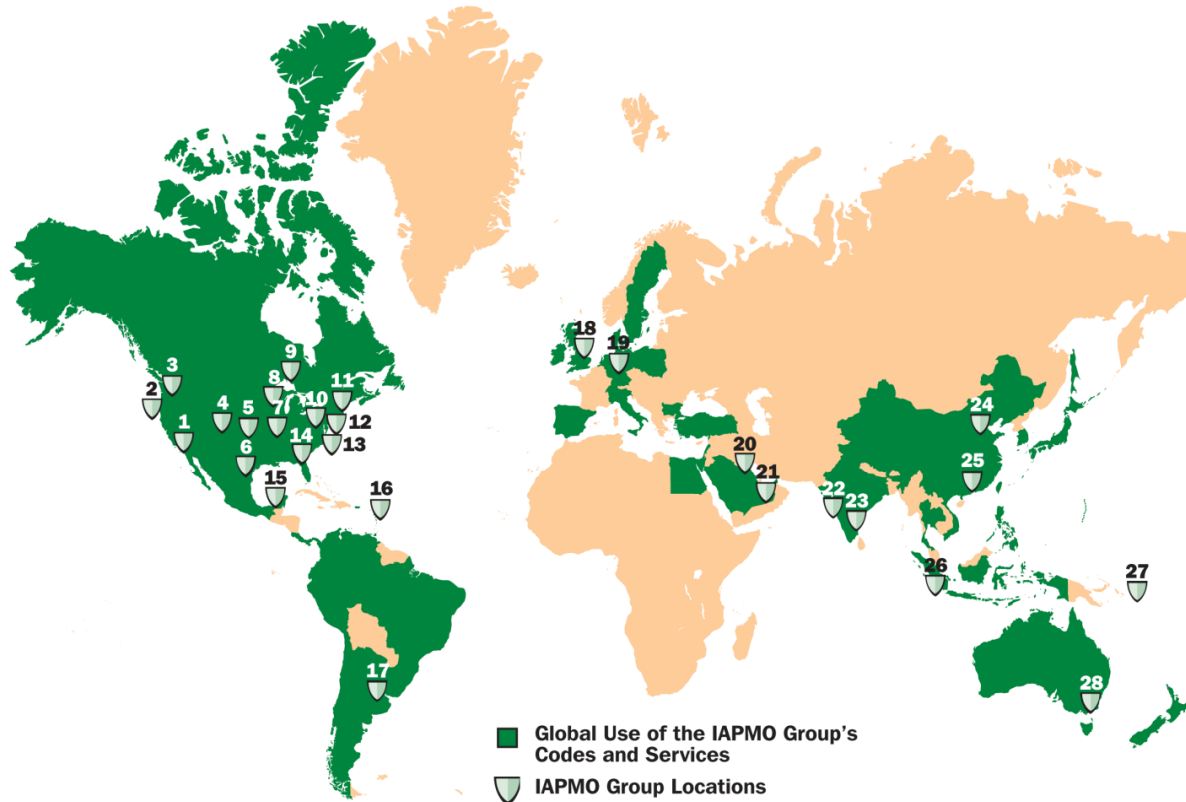
- Established in 1926 –90 Years Old!
- World Headquarters in California, USA: 200+ Employees, offices in 11 countries
- Main Goal: International Public Health & Safety with Environmental Awareness through Codified Construction

Working Relationships

- Government (U.S. EPA DOE, DOC, USTR, USAID, etc.)
- Non Governmental Organizations (WPC, WHO, ASHRAE, ANSI, ASTM, ASME, PMI, etc.)
- International - MoUs with numerous entities in Europe, China, South America, the Middle East and the Asia Pacific Region



IAPMO Worldwide Presence



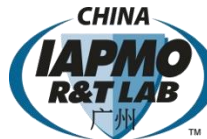
- | | | | |
|--|--------------------------------------|--|--------------------------|
| 1. World Headquarters
Ontario, California | 9. Toronto, Canada | 17. Buenos Aires,
Argentina | 24. Beijing, China |
| 2. Portland, Oregon | 10. Scranton, Pennsylvania | 18. York, England | 25. Guangzhou, China |
| 3. Olympia, Washington | 11. Boston, Massachusetts | 19. Ruhr, Germany | 26. Jakarta, Indonesia |
| 4. Denver, Colorado | 12. Dayton, New Jersey | 20. Kuwait City, Kuwait | 27. Suva, Fiji |
| 5. Wichita, Kansas | 13. Washington D.C. | 21. Abu Dhabi, United
Arab Emirates | 28. Melbourne, Australia |
| 6. Houston, Texas | 14. Atlanta, Georgia | 22. Poona, India | |
| 7. Chicago, Illinois | 15. Monterrey, Mexico | 23. Bengaluru, India | |
| 8. Milwaukee, Wisconsin | 16. St. Thomas,
US Virgin Islands | | |



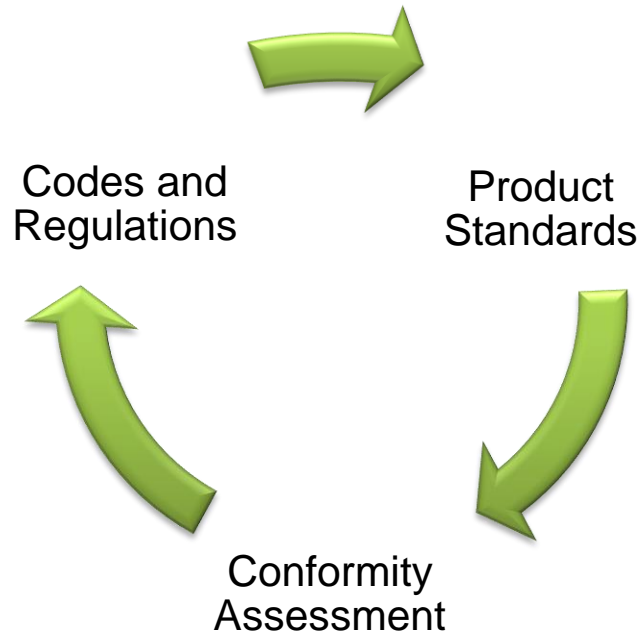
The IAPMO Group

COMPLETE SERVICE ORGANIZATION

- Code Development
- Standards Development
- Industry-leading Training and Education
 - From market access to capacity building
- Accredited Industry Leading Compliance Programs
 - Test Labs, 3rd Party Certification Program, Continuous Compliance Inspection Program
- And much more...



Standards-Codes-Conformity Assessment



- Each plays a vital role
- Effective framework
- Level playing field
- Substantial industry involvement

Codes and Regulations are intended to protect health and safety

Standards dictate specific product performance requirements within the codes

Conformity assessment is a process to help to insure the mandates within the codes, standards and regulations are met.

Voluntary Consensus Codes and Standards

- Become framework to which regulators, labor, manufacturers, and educators can respond.
- Promotes public health and access to clean water & sanitation
- Drives the development of a skilled workforce
- Provides a pathway for innovative, sustainable products and services to be utilized
- Eliminate the cost to the government of developing its own standard
- Decrease the cost of goods procured and the burden of complying with agency regulation
- Encourage long-term growth for U.S. enterprises

True Consensus Standards and Codes

- (OMB) Circular A-119, “Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities.”
 - The OMB directs federal agencies to prefer those standards that can meet the OMB’s definition of a voluntary consensus standard.
 - The OMB states the “procedures or processes used are open to interested parties” so that all stakeholders have a chance to propose changes to the standard and vote on its final outcome.

Not all code and standard bodies adhere to the strict open consensus process, but as an ANSI Audited Designator IAPMO’s Uniform Codes exceed the consensus and balance requirements set by OMB throughout the entire code development process — from inception to final vote.



Baseline Plumbing Codes

Major baseline plumbing codes in the U.S.A.

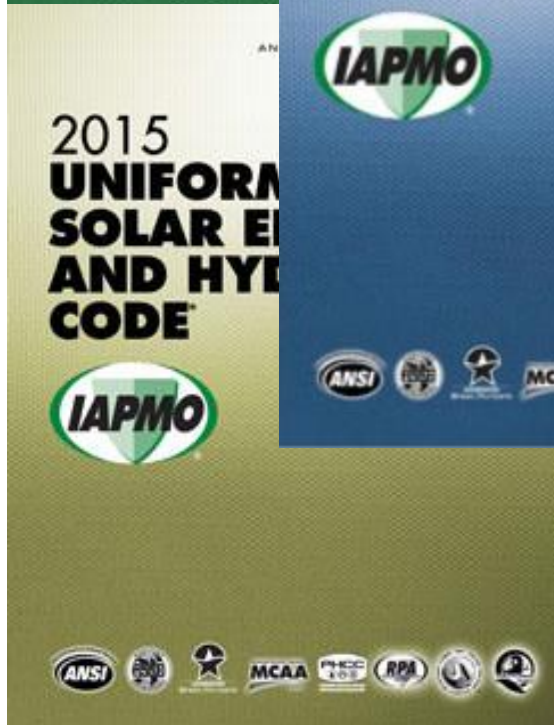
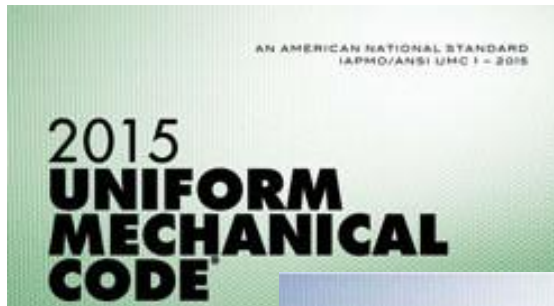
A great foundation!



- IAPMO
 - Uniform Plumbing Code (UPC)
 - Uniform Mechanical Code (UMC)
 - Uniform Solar Energy and Hydronics Code (USEHC)
- These codes contain hundreds of referenced standards from SDO's including ISO, ASTM, ASME, CSA, IAPMO, NSF, NFPA, UL and many others



Baseline Plumbing Codes

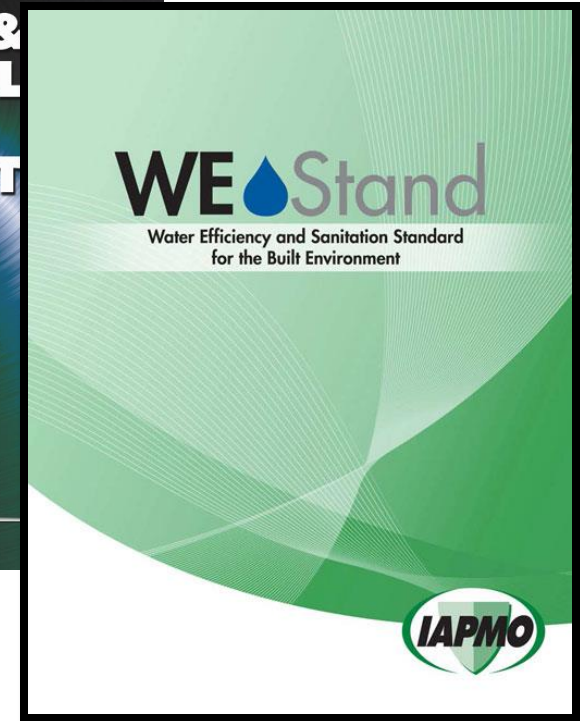


- Addresses both energy and water efficiency and many other aspects of sustainability in plumbing and mechanical applications
- ANSI accredited consensus development process – All stakeholders have a vote throughout the entire development process
- Uniform Plumbing Code – First code in the USA with provisions for rainwater catchment, gray water and reclaimed water in the body of the code



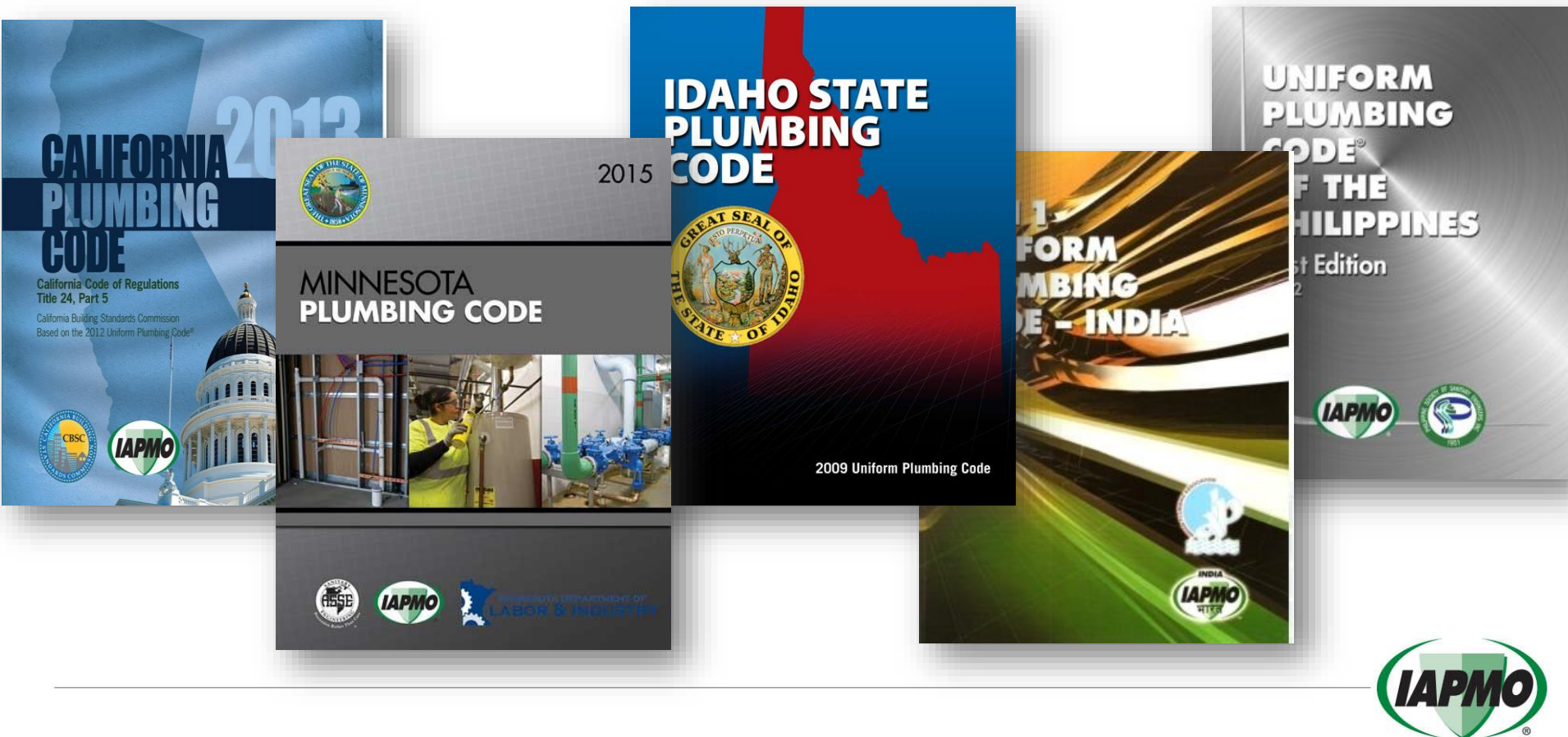
IAPMO Green

- Overlay code designed to work with any baseline plumbing and mechanical code, not just IAPMO codes
- First published in February, 2010
- Updated on continuous maintenance basis
- Repository for emerging technologies and code provisions – eventual incorporation into the baseline codes



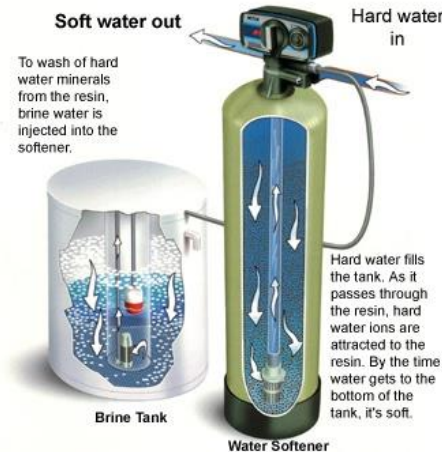
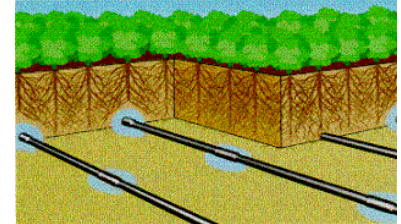
Customized Codes

- Uniform Plumbing Code used as basis
- Tailored to specific needs of the AHJ



What Our Code Covers

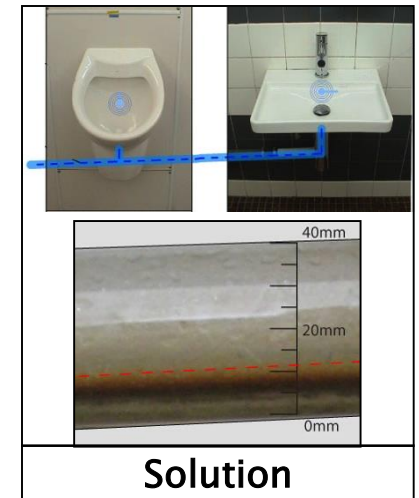
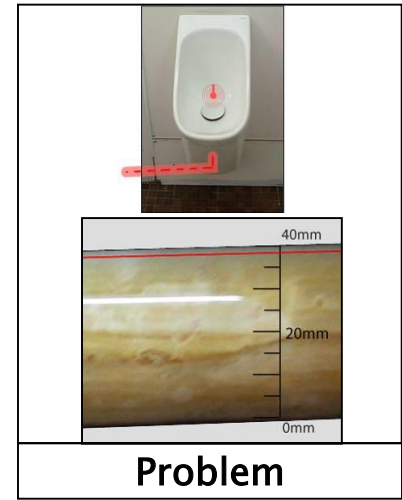
- Water and energy efficiency
 - Saving water is the most cost effective means to save energy
- Alternate water source use
- HVAC provisions
- Hot water system design provisions
- Indoor environmental quality
- Progressive insulation requirements - Metering
- Installer qualifications
- Landscape irrigation
- Swimming pool water and energy efficiency provisions
- Food service equipment



Research Driven

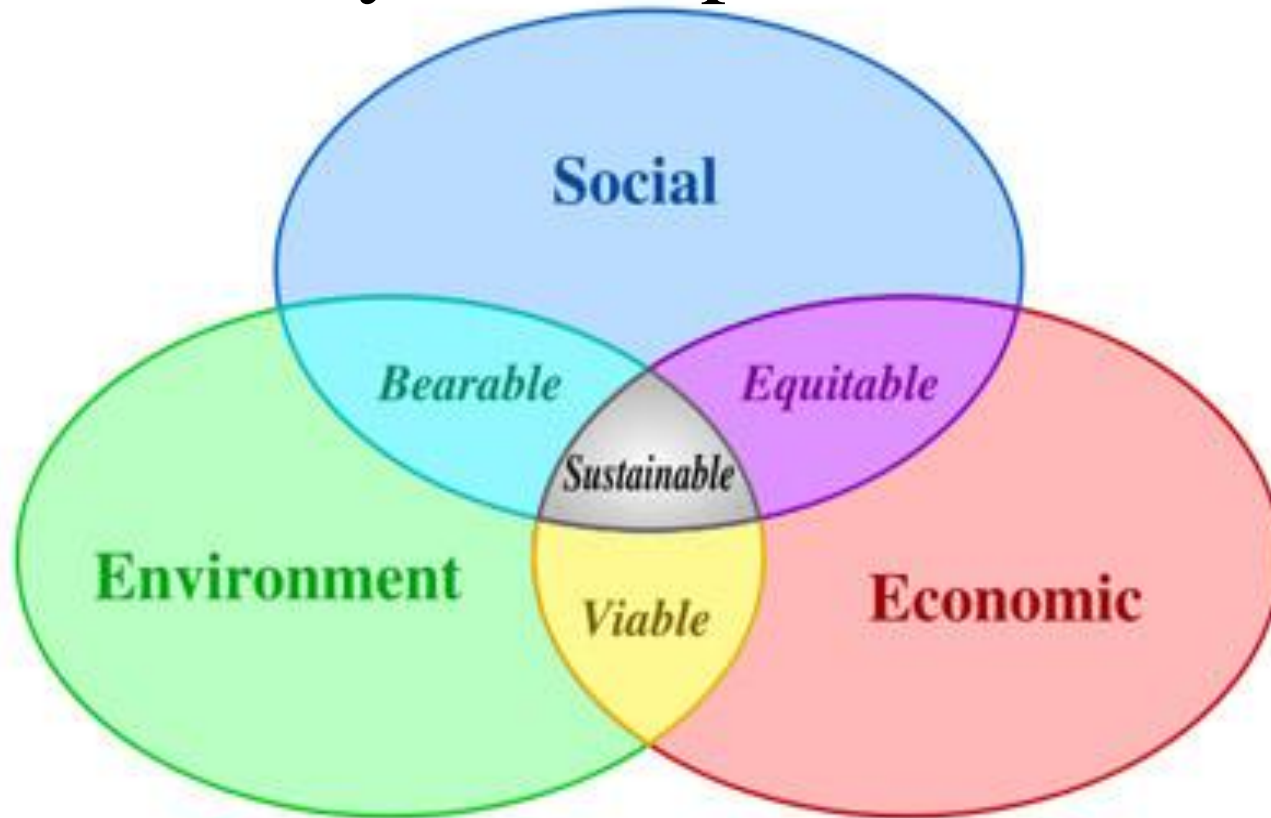
Addressing the unintended consequences of water efficiency

- Guided by industry research
- Codification of research findings where appropriate
- Addresses unintended consequences of water efficiency
 - “Dry drains” – drainline transport
 - Non-water consuming urinals
 - Opportunistic pathogens (i.e. legionella) in water supply pipes
 - Re-calculating water pipe sizing tables



Consensus Based Development and Standardization

Why is it Important?



Source - HABITAT re-imagined



Case Study: Virginia Class Submarines

- Virginia class attack submarine is one of the most powerful and complex naval combatants ever created.
- Historically, focus was on custom design. The result was proliferation of functionally similar or nearly identical parts.
- A \$27 million investment in parts standardization is projected to lead to \$789 million in cost avoidance. Number of procured parts was reduced by 60%.



Consensus Based Code Development

Public and Stakeholder Participation



Technical Committee –

- One for each code or standard
- Responsible for the development and revision of that code/standard.
- Members of public/not IAPMO staff

IAPMO ensures that there is a balance of interest at EACH Step of the Code Process:

Manufacturer

Installer/Maintainer

Special Expert

Labor

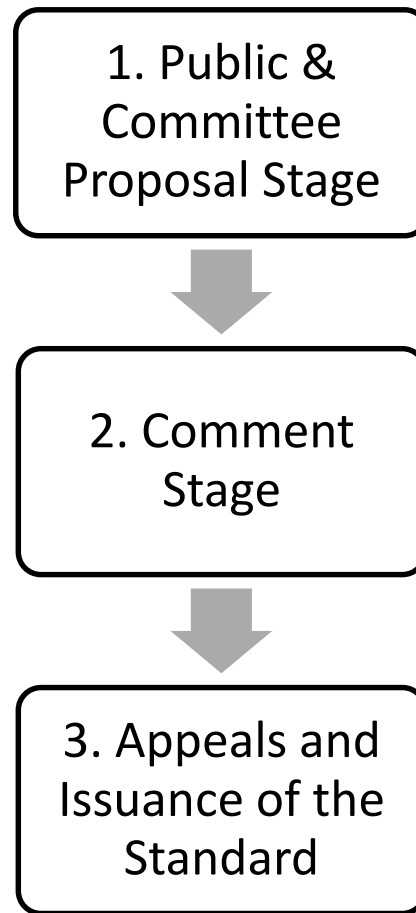
Research/Standards/Testing Laboratory

Consumer Use

Enforcing Authority

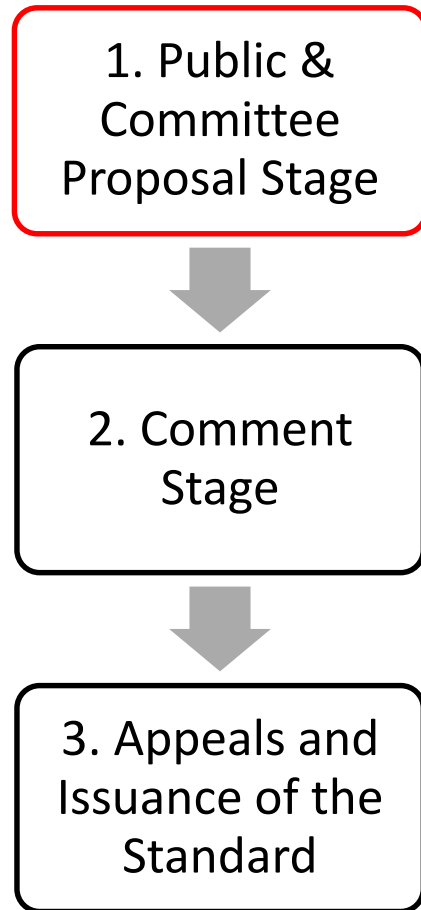


Public & Stakeholder Participation



Public & Stakeholder Participation

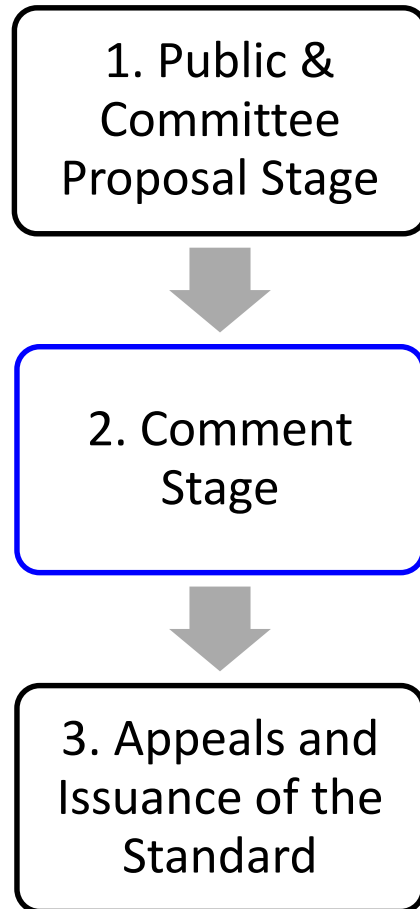
Step 1. Public & Committee Proposal Stage



- Public notice asking for any interested party to submit public proposals on an existing standard (online/magazine/partners)
- 1st Technical Committee mtg – review and consider all public proposals
- Proposed changes are drafted and then sent out to the Technical Committee for review and vote
- Final report is put together with all of the proposed changes to the standard

Public & Stakeholder Participation

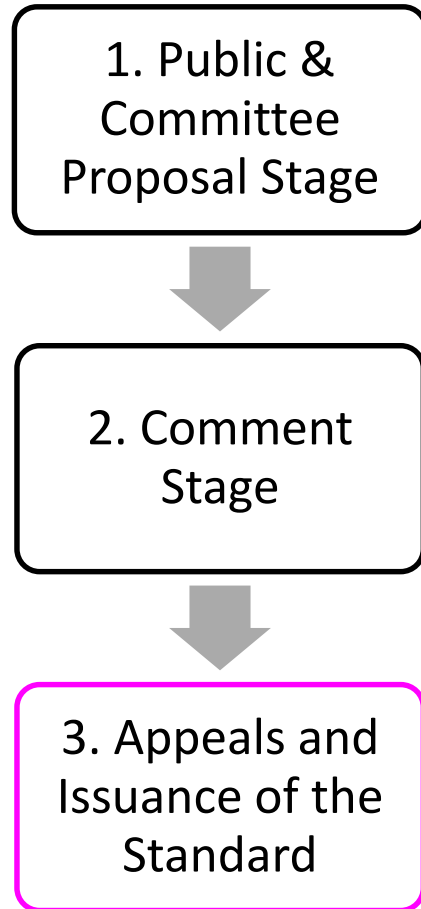
Step 2. Comment Stage



- The report with all of the proposed changes is made available to the public
- Public has a chance to comment
- 2nd Technical Committee mtg – review and consider all public comments
- Proposed changes are drafted and then sent out to the Technical Committee for review and vote
- Standard is drafted with all of the approved changes. Every comment and action by the cmte is made public

Public & Stakeholder Participation

Step 3. Appeals and Issuance of the Standard



- Any member of the public or stakeholder has a right to appeal changes that have been made to the standard
- Committee reviews all appeals and makes final decision
- Standard is then finalized and made available for adoption

Role of Conformity Assessment

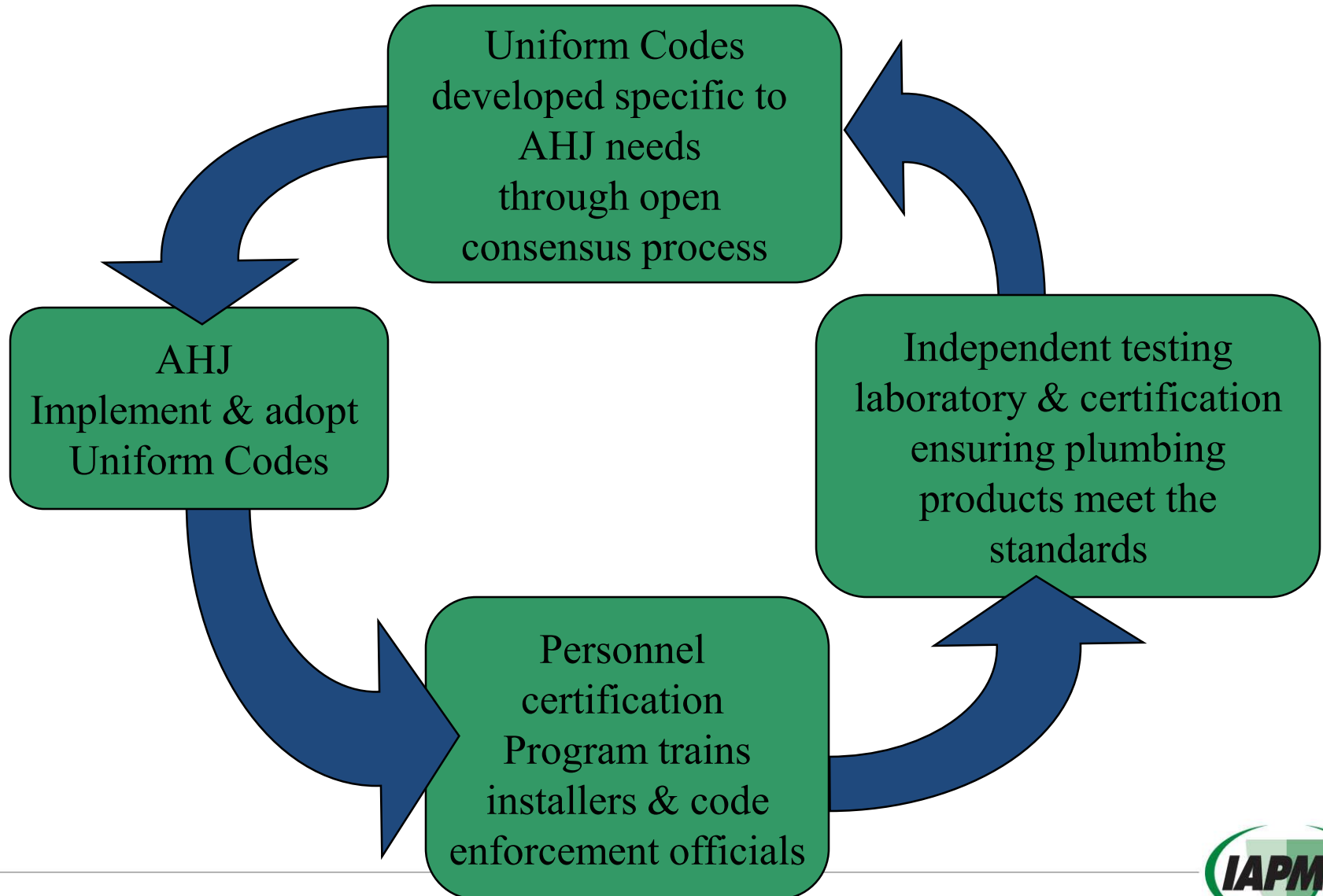
- Evaluate, Review and Certified Products for compliance with applicable performance standards, codes, specifications, and/or laws.
- Consists of:
 - Product Testing
 - Technical Evaluation (“Initial Review”)
 - Technical Review (“Secondary Review”)
 - Inspection (initial, periodic, post mortem, and special inspection)
 - Certification Decision
 - Annual Renewal (incl. renewal technical review, sample selection, retesting, inspection, review for modification/updates on requirements, etc.)

Role of Conformity Assessment

Objective: to assure that the product continues to meet the applicable performance standards, codes, specifications, and/or laws following its initial certification.

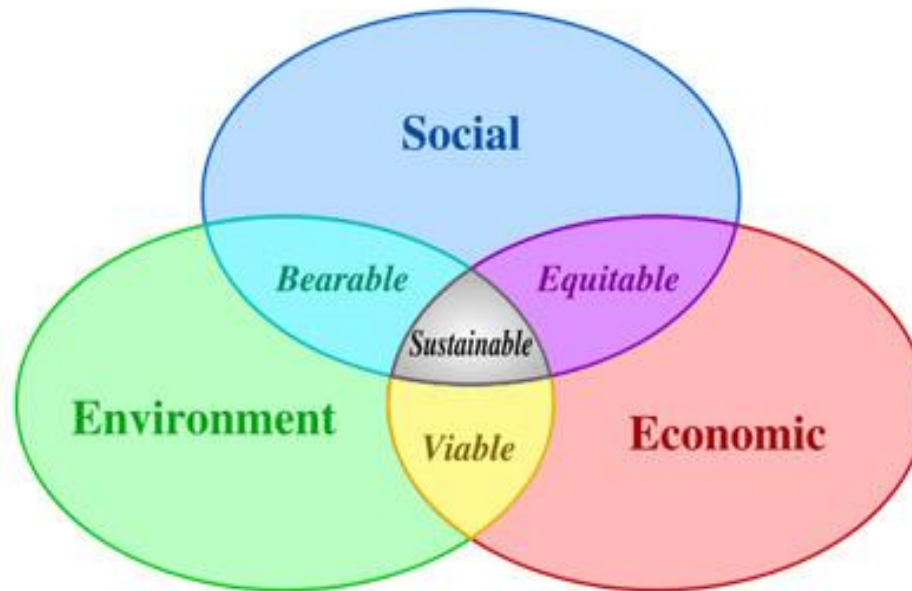


Full Circle of Standardization



Consensus Based Code Development

Achieving Consensus Necessitates
Collaboration Among All Stakeholders



True *Consensus* Collaboration – An IAPMO Group Trademark!

Source - HABITAT re-imagined



THANK YOU

Dain M. Hansen
Senior Vice President
Government Affairs
Dain.Hansen@iapmo.org
(202) 445-7514

